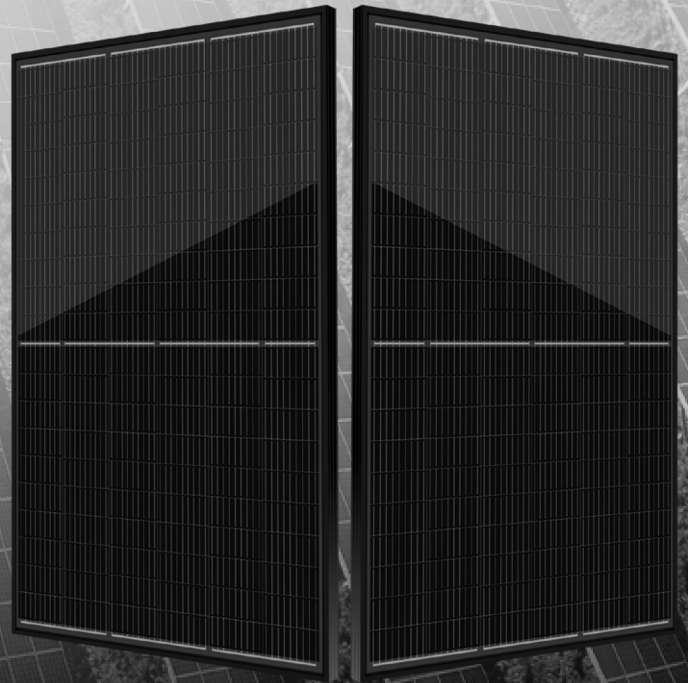




YOUR RELIABLE
PARTNER FOR
SOLAR ENERGY
SINCE 1992



EMMVEE BLACK MODULE

MOST AESTHETIC SNIPER FOR YOUR ROOF!

Emmvee is an intelligent solar solutions producer born from an idea to implement green energy to better use. We aim at providing universally designed products to support all kinds of contemporary and lavish living. Amidst our industrial product range, Photovoltaics and Solar Water Heating Systems have been our strongest since inception in 1992.

Worried about the sustainability of your solar modules in the extreme harsh weather conditions?

Emmvee Solar Photovoltaic Modules are the best for On-Grid solar power plants. Our modules are built to withstand extreme harsh weather conditions and sustain for more than 25 years. The rigid performance and safety measures adopted by our products are one of its kind. These modules are carved into perfection with our state-of-the-art machinery and premium materials sourced from across the world.

FEATURES



AR COATED HIGH
TRANSMISSION GLASS



ANODISED BLACK
ALUMINIUM FRAME



PID
RESISTANT



MECHANICAL
LOAD OF 5400 Pa



MC4 COMPATIBLE
CONNECTORS

BENEFITS



CAPABLE OF BEARING
HIGH SNOW LOAD AND
HIGH WIND SPEED



EXCELLENT CURRENT
DISTRIBUTION



FLEXIBILITY IN
INVERTER SELECTION



RESISTS CORROSION
OF THE FRAME



NO DEGRADATION OF
ELECTRICAL POWER,

TECHNICAL SPECIFICATION

FOR EMMVEE BLACK MODULE

Electrical data at 1000W/m², 25°C and A.M1.5 (STC in accordance with IEC 60904-3)

MODEL NAME	E330P72-B	E335P72-B	E390M72-B	E395M72-B	E440H CM120-B	E445H CM120-B	E450H CM120-B
RATED POWER AT STC	330 Wp	335 Wp	390 Wp	395 Wp	440 Wp	445 Wp	450 Wp
MODULE EFFICIENCY AT STC	16.92%	17.18%	19.45%	19.70%	20.28%	20.51%	20.74%
OPEN CIRCUIT VOLTAGE - Voc (volts)	45.9	46.0	49.0	49.1	41.44	41.46	41.56
SHORT CIRCUIT CURRENT - Isc (amps)	9.2	9.31	10.12	10.21	13.55	13.75	13.81
MAX POWER VOLTAGE - Vpm (volts)	37.7	37.8	40.37	40.45	34.21	34.28	34.31
MAX POWER CURRENT - Ipm (amps)	8.76	8.86	9.66	9.75	12.87	12.99	13.12

THE MEASUREMENT TOLERANCE OF THE RATED POWER IS ±3%. THE MODULES DELIVERED ARE SORTED IN A RANGE OF +5WP. AT LOW IRRADIANCE (200W/M², 25°C AND AM1.5) THE MODULE YIELDS AT LEAST 96% OF THE STC EFFICIENCY.

Thermal data

TEMPERATURE COEFFICIENT OPEN-CIRCUIT VOLTAGE	-0.34% / ° K	-0.29% / ° K	-0.29% / ° K
TEMPERATURE COEFFICIENT SHORT CIRCUIT CURRENT	+0.05% / ° K	+0.05% / ° K	+0.05% / ° K
TEMPERATURE COEFFICIENT RATED POWER	-0.4% / ° K	-0.39% / ° K	-0.39% / ° K
NOCT (NORMAL OPERATING CELL TEMPERATURE)	44°C ± 2°C	44°C ± 2°C	44°C ± 2°C

Mechanical data

NUMBER OF CELLS AND CELL TYPE	72 MULTICRYSTALLINE SOLAR CELLS (157 mm X 157 mm)	72 MONO PERC SOLAR CELLS (158.75 mm X 158.75 mm)	120 MONO PERC SOLAR CUT CELLS (182 mm X 91 mm)
DIMENSIONS: LENGTH X WIDTH X HEIGHT	1970 mm x 990 mm x 35 mm	1993 mm x 1006 mm x 35 mm	1913 mm x 1134 mm x 35 mm
WEIGHT	22 Kg	23 Kg	24 Kg
FRONT GLASS	3.2 mm HIGH TRANSMISSION, TEMPERED GLASS	3.2 mm HIGH TRANSMISSION, TEMPERED GLASS	3.2 mm HIGH TRANSMISSION, TEMPERED GLASS
EMBEDDING	EVA	EVA	EVA
BACK SHEET	COMPOSITE FILM, BLACK	COMPOSITE FILM, BLACK	COMPOSITE FILM, BLACK
FRAME	BLACK ANODIZED ALUMINIUM FRAME	BLACK ANODIZED ALUMINIUM FRAME	BLACK ANODIZED ALUMINIUM FRAME
JUNCTION BOX	IP67	IP67	IP68
NUMBER OF BYPASS DIODES	3	3	3
CABLES	4mm ² SOLAR CABLES, LENGTH 1200 ± 10 mm	4mm ² SOLAR CABLES, LENGTH 1200 ± 10 mm	4mm ² SOLAR CABLES, LENGTH 500 ± 10 mm
CONNECTORS	MC4 COMPATIBLE	MC4 COMPATIBLE	MC4 COMPATIBLE

Permissible operating conditions

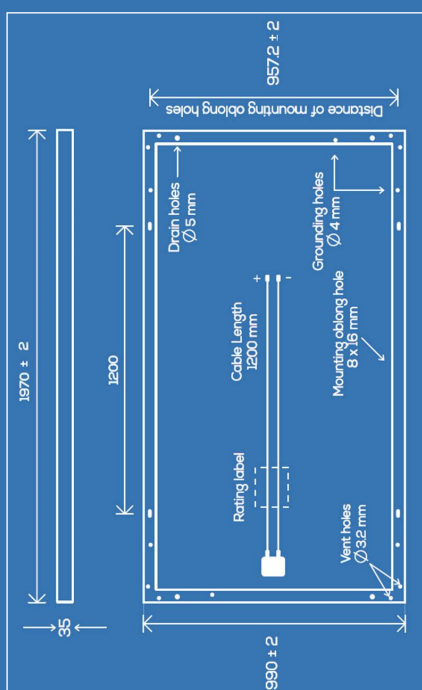
OPERATING TEMPERATURE RANGE	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C
MAX.SYSTEM VOLTAGE	1500V DC	1500V DC	1500V DC
MAX.REVERSE CURRENT	20A	20A	25A
MAXIMUM SURFACE LOAD CAPACITY	5400Pa	5400Pa	5400Pa
RESISTANCE AGAINST HAIL	MAX Ø24 mm WITH IMPACT SPEED OF 83km/h	MAX Ø24 mm WITH IMPACT SPEED OF 83km/h	MAX Ø24 mm WITH IMPACT SPEED OF 83km/h
PROTECTION CLASS	II	II	II

TECHNICAL SPECIFICATION FOR EMMVEE BLACK MODULE

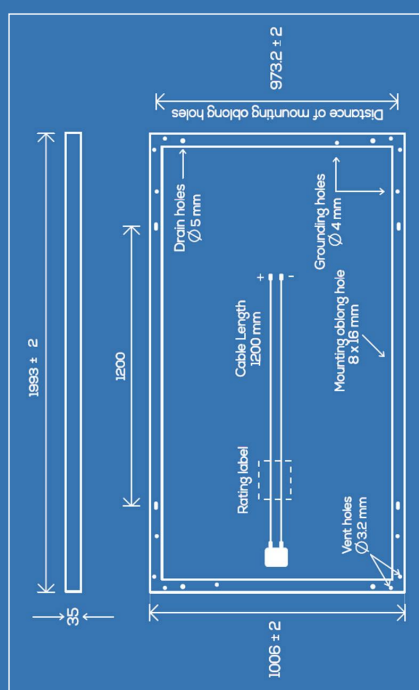
Warranty

PRODUCT WARRANTY	10 YEARS	10 YEARS	12 YEARS
PERFORMANCE WARRANTY	25 YEARS	25 YEARS	25 YEARS
ANNUAL DEGRADATION	1ST YEAR DEGRADATION, 2.5%, FROM 2ND YEAR 0.73% ANNUAL DEGRADATION AND 80% AT THE END OF 25 YEARS.	1ST YEAR DEGRADATION, 2.5%, FROM 2ND YEAR 0.73% ANNUAL DEGRADATION AND 80% AT THE END OF 25 YEARS.	1ST YEAR DEGRADATION, 2%, FROM 2ND YEAR 0.55% ANNUAL DEGRADATION AND 85% AT THE END OF 25 YEARS.

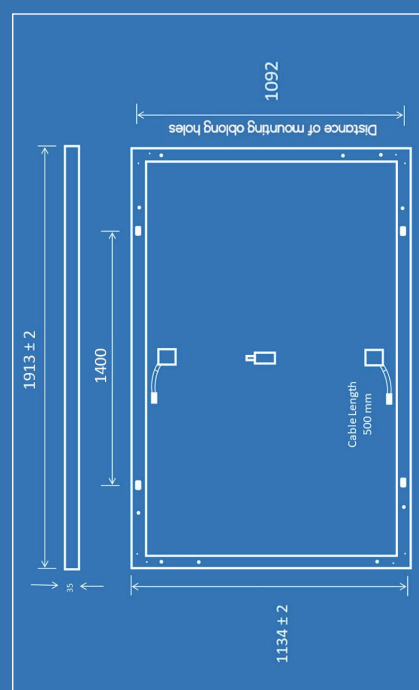
**72 MULTICRYSTALLINE
SOLAR CELLS
(157 mm x 157 mm)**



**72 MONO PERC
SOLAR CELLS
(158.75 mm x 158.75 mm)**



**120 MONO PERC
SOLAR CUT CELLS
(182 mm x 91 mm)**



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SINCE 1992



IEC 61215
IEC 61730
Regular Production
Surveillance
www.tuv.com
ID 1111219282



Salt Mist
Resistance
Regular Production
Surveillance
www.tuv.com
ID 1111219443



Ammonia
Resistance
Regular Production
Surveillance
www.tuv.com
ID 1111219415



MANAGEMENT SYSTEM CERTIFICATION
ISO 9001 = ISO 14001
OHSAS 18001



ISO 14286 / IEC 61215
IS / IEC 61730 (P1 & P2)
R - 62001074

EMMVEE PHOTOVOLTAIC POWER PRIVATE LIMITED

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